FOOT MASSAGING TUB HAVING AN OPERATION CONTROL DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a foot massaging tub, and more particularly to a foot massaging tub having an operation control device.

2. Description of the Related Art

A conventional foot massaging tub in accordance with the prior art shown in Figs. 1 and 2 comprises a main body 10, and a seat 20 mounted on a rear side of the main body 10. The main body 10 has an inner wall provided with a water extraction hole 11 and a plurality of circulation nozzles 12. Thus, the water contained in the main body 10 is extracted outward through the water extraction hole 11 and is pressurized. Then, the pressurized water is injected into the main body 10 through the circulation nozzles 12, thereby achieving a circulation massaging effect. The main body 10 has a bottom provided with a drain hole 13. The inner wall of the main body 10 has a side provided with a mounting hole 14. The conventional foot massaging tub further comprises a draining device 15 mounted between the drain hole 13 and the mounting hole 14. The draining device 15 includes a draining head 151 mounted in the drain hole 13, a draining switch 152 mounted in the mounting hole 14, a soft conducting pipe 153 mounted between the draining head 151 and the draining switch 152, and a conducting wire 154 mounted between the draining head 151

and the draining switch 152 to open or close the draining head 151. The draining switch 152 has an inside provided with an overflow hole 155 (see Fig. 1a) which is connected to the soft conducting pipe 153. The conventional foot massaging tub further comprises a draining pipe 30 mounted on the main body 10 and connected to the draining head 151, and a pumping motor 40 mounted on the main body 10 and connected to the draining pipe 30.

In operation, when the draining switch 152 is started, the draining head 151 is opened by the conducting wire 154, so that the water contained in the main body 10 flows through the drain hole 13 and the draining head 151 into the draining pipe 30. Alternatively, when the level of the water contained in the main body 10 is greater than that of the draining switch 152, the overflow water in turn flows through the overflow hole 155, the soft conducting pipe 153 and the draining head 151 into the draining pipe 30. At this time, the pumping motor 40 is started simultaneously, so that the water can be drained outward from the draining pipe 30 conveniently.

However, operation the pumping motor 40 cannot be paused or stopped automatically. Thus, when the water is completely drained outward from the draining pipe 30, the pumping motor 40 is still operated successively, so that the pumping motor 40 is easily burnt out due to the idle operation.

SUMMARY OF THE INVENTION

The primary objective of the present invention is to provide a foot massaging tub, wherein when the sensor detects that the drained water or

overflow water flows into the draining pipe, the pumping motor is started automatically, so that the water can be drained outward from the draining pipe easily and conveniently.

Another objective of the present invention is to provide a foot massaging tub, wherein when the sensor detects that the drained water or overflow water is completely drained outward from the draining pipe, operation of the pumping motor is stopped automatically, thereby preventing the pumping motor from being burnt out due to idle operation, so as to enhance safety of operation.

A further objective of the present invention is to provide a foot massaging tub, wherein the indication unit indicates the working condition, so that the user can see operation of the pumping motor.

In accordance with the present invention, there is provided a foot massaging tub, comprising:

a main body having a bottom provided with a drain hole;

a draining pipe mounted on the main body and connected to the drain hole;

a pumping motor mounted on the main body and connected to the draining pipe; and

an operation control device mounted on the main body and including a controller, a power output unit, and a sensor, wherein:

the controller is mounted in the main body;

the power output unit has a first end connected to an electric wire of the pumping motor and a second end connected to the controller; and

the sensor is mounted in the main body and is connected to the controller.

Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an exploded perspective view of a conventional foot massaging tub in accordance with the prior art;

Fig. 1a is a partially enlarged view of the conventional foot massaging tub as shown in Fig. 1;

Fig. 2 is a bottom plan assembly view of the conventional foot massaging tub as shown in Fig. 1;

Fig. 3 is an exploded perspective view of a foot massaging tub in accordance with the preferred embodiment of the present invention;

Fig. 3a is a partially enlarged view of the foot massaging tub as shown in Fig. 3;

Fig. 4 is a block view of a circuit of the foot massaging tub in accordance with the preferred embodiment of the present invention;

Fig. 5 is a side plan cross-sectional assembly operational view of the foot massaging tub as shown in Fig. 3; and

Fig. 6 is a side plan cross-sectional assembly operational view of the foot massaging tub as shown in Fig. 3.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings and initially to Figs. 3-5, a foot massaging tub in accordance with the preferred embodiment of the present invention comprises a main body 10, and a seat 20 mounted on a rear side of the main body 10.

The main body 10 has an inner wall provided with a water extraction hole 11 and a plurality of circulation nozzles 12. Thus, the water contained in the main body 10 is extracted outward through the water extraction hole 11 and is pressurized. Then, the pressurized water is injected into the main body 10 through the circulation nozzles 12, thereby achieving a circulation massaging effect. The main body 10 has a bottom provided with a drain hole 13. The inner wall of the main body 10 has a side provided with a mounting hole 14.

The foot massaging tub further comprises a draining device 15 mounted between the drain hole 13 and the mounting hole 14. The draining device 15 includes a draining head 151 mounted in the drain hole 13, a draining switch 152 mounted in the mounting hole 14, a soft conducting pipe 153 mounted between the draining head 151 and the draining switch 152, and a conducting wire 154 mounted between the draining head 151 and the draining switch 152 to open or close the draining head 151. The draining switch 152 has

an inside provided with an overflow hole 155 (see Fig. 3a) which is connected to the soft conducting pipe 153.

The foot massaging tub further comprises a draining pipe 30 mounted on the main body 10 and connected to the draining head 151, and a pumping motor 40 mounted on the main body 10 and connected to the draining pipe 30.

The foot massaging tub further comprises an operation control device 50 mounted on the main body 10 and including a controller 51, a power input unit 52, a power output unit 53, a sensor 54, and an indication unit 55.

The controller 51 is mounted in the main body 10.

The power input unit 52 has a first end connected to a power supply (not shown) and a second end connected to the controller 51.

The power output unit 53 has a first end connected to an electric wire 42 of the pumping motor 40 and a second end connected to the controller 51.

The sensor 54 is mounted on an outer periphery of the draining pipe 30 and is connected to the controller 51.

The indication unit 55 is mounted on and protruded outward from the main body 10 as shown in Fig. 5, and is connected to the controller 51. Preferably, the indication unit 55 consists of a light emitting diode to indicate the working condition of the pumping motor 40.

Referring to Fig. 5 with reference to Figs. 3 and 4, when the draining switch 152 is started, the draining head 151 is opened by the conducting wire

154, so that the water contained in the main body 10 flows through the drain hole 13 and the draining head 151 into the draining pipe 30. At this time, the sensor 54 detects the draining condition and sends a signal to the controller 51 which controls the power output unit 53 and the indication unit 55 to operate, so that the pumping motor 40 is started automatically by the power output unit 53, and the indication unit 55 indicates the working condition simultaneously. After the pumping motor 40 is started, the water contained in the main body 10 can be drained outward from the draining pipe 30.

On the contrary, when the sensor 54 detects that the water contained in the main body 10 is completely drained outward from the draining pipe 30, the sensor 54 sends a signal to the controller 51 which controls the power output unit 53 and the indication unit 55 to stop operating, so that operation of the pumping motor 40 is stopped automatically by the power output unit 53, and the indication unit 55 stops operating simultaneously. Thus, operation of the pumping motor 40 is stopped automatically, thereby preventing the pumping motor 40 from being burnt out due to idle operation.

Referring to Fig. 6 with reference to Figs. 3 and 4, when the level of the water contained in the main body 10 is greater than that of the draining switch 152, the overflow water in turn flows through the overflow hole 155, the soft conducting pipe 153 and the draining head 151 into the draining pipe 30. At this time, the sensor 54 detects the overflow condition and sends a signal to the controller 51 which controls the power output unit 53 and the indication

unit 55 to operate, so that the pumping motor 40 is started automatically by the power output unit 53, and the indication unit 55 indicates the working condition simultaneously. After the pumping motor 40 is started, the overflow water of the main body 10 can be drained outward from the draining pipe 30.

On the contrary, when the sensor 54 detects that the overflow water is completely drained outward from the draining pipe 30 and the overflow water stops flowing through the overflow hole 155, the sensor 54 sends a signal to the controller 51 which controls the power output unit 53 and the indication unit 55 to stop operating, so that operation of the pumping motor 40 is stopped automatically by the power output unit 53, and the indication unit 55 stops operating simultaneously. Thus, operation of the pumping motor 40 is stopped automatically, thereby preventing the pumping motor 40 from being burnt out due to idle operation.

Accordingly, when the sensor 54 detects that the drained water or overflow water flows into the draining pipe 30, the pumping motor 40 is started automatically, so that the water can be drained outward from the draining pipe 30 easily and conveniently. In addition, when the sensor 54 detects that the drained water or overflow water is completely drained outward from the draining pipe 30, operation of the pumping motor 40 is stopped automatically, thereby preventing the pumping motor 40 from being burnt out due to idle operation, so as to enhance safety of operation. Further, the

indication unit 55 indicates the working condition, so that the user can see operation of the pumping motor 40.

Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such modifications and variations that fall within the true scope of the invention.